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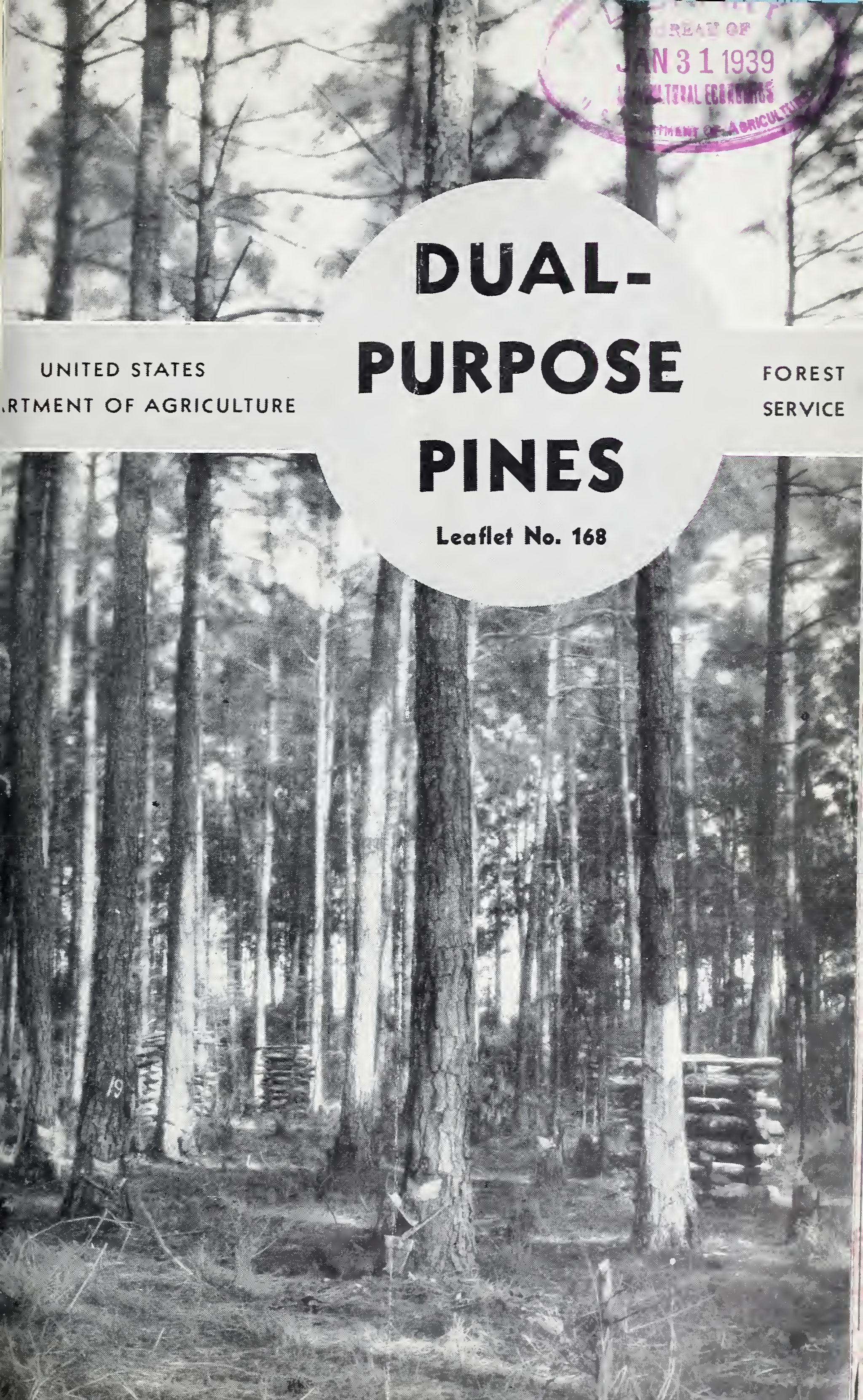

UNITED STATES
RTMENT OF AGRICULTURE

DUAL-PURPOSE PINES

Leaflet No. 168

FOREST
SERVICE

Introduction . . .

MOST TREES serve mankind in two or more ways. In addition to furnishing wood for lumber and other products they may provide fruit or shade, contribute to soil fertility through deposits of leafmold, or prevent erosion by adding to the stability of the soil.

Presented here, however, is a picture of dual-purpose pines that give the timber grower or farmer two different kinds of cash crops. They are the longleaf and slash pines. The general region in which they grow lies along the Atlantic seaboard and the Gulf coast, a strip about a thousand miles long stretching from the Carolinas to Texas.

The wise, forward-looking timber farmer in the region where slash and longleaf pines thrive will encourage the growth of these trees from natural reseeding, or, where no seed trees are present, will plant nursery-grown seedlings of these species and protect them from fire and other hazards. The landowner who does this may expect fairly early cash returns, which, with proper management, may be continued indefinitely.

Longleaf and slash pines are double-crop trees because they yield both naval stores and wood. Such trees are the source of the major part of the world's supply of gum naval stores (gum turpentine and gum rosin). Gum naval stores are produced from the crude gum (oleoresin) which comes from the living trees. Following the turpentining operations the trees are cut and sold for poles, ties, lumber, or pulpwood.

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MANAGING DUAL-PURPOSE PINES

ESSENTIAL STEPS in the profitable management of longleaf and slash-pine stands are easily understood. They may be summed up as follows:

Fire protection.—Adequate protection from accidental or promiscuous burning is a main requirement of management. Protection from fire is necessary in order to get sufficient reproduction to build up the stand and to assure unretarded growth in a young stand of trees and good, healthy trees that will be entirely suitable for all uses when they mature.

Plan diversified timber farming.—A careful look ahead will help in getting full value out of double-crop pines. The products will be naval stores and wood that may be used in various ways. One of the early thinnings of small trees may provide pulpwood. A later thinning of selected trees which have previously been turpentined, after they had reached 9 inches in diameter, may provide pulpwood and other small-dimensioned products. The remaining or main "crop" trees (all over 9 inches in diameter) will then stand working for naval stores over a long period before being harvested for the timber crop of piling, poles, and sawlogs.

Early thinnings in crowded stands.—One or more early thinnings, referred to in the preceding paragraph, will usually be necessary in dense stands

A young crowded stand of slash pines in need of the first thinning. The purpose is to give growing space and speed up the development of the most promising trees and have them evenly spaced.

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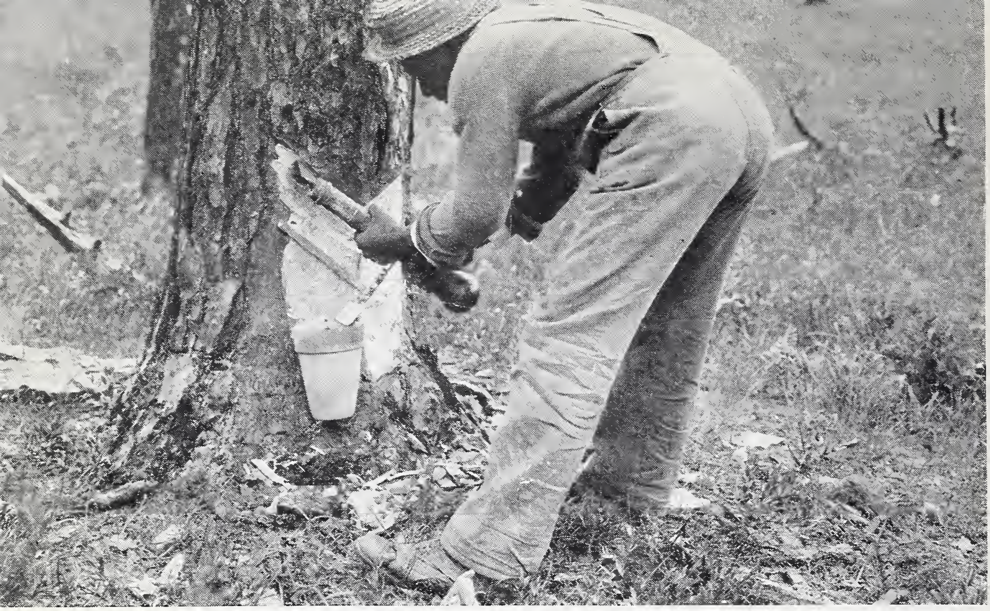

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Good practice in turpentining trees. Light chipping keeps the face low and prolongs the working period of the tree up to 20 years or more.

before the trees are large enough to be turpentined. These early thinnings are necessary to relieve crowded conditions and to permit the remaining trees in the stand to grow at a faster rate. The first thinning should be made after the trees reach heights of about 10 to 20 feet and diameters of 3 inches or more (measured at breast height). An average of from 400 to 500 trees per acre, well-spaced and of proper size, should be left. Another thinning should be made when the trees reach about 6 inches in diameter, thus reducing the stand to from 200 to 300 trees per acre. This thinning obviously is made prior to turpentining. If products such as fuel wood or pulpwood are secured from this later thinning, they will provide the first economic returns from the timber farm.

Starting a New Stand

The mature crop trees should be cut with care so as to provide a new stand. Not all the trees should be cut at one time. The stand should be cut quite heavily by taking out one-half to three-fourths of all the trees, leaving an open stand of seed trees to be cut a few years later. This encourages the seeding of a good stand of young trees.

The best practice for securing a stand of young trees to replace the old stand is to do the cutting at a time when the mature trees have an abundant seed crop, in the late fall or winter of a good seed year. The logging operations will work the seed into the top of the soil, where it will germinate either in the late fall or early spring.

Good Turpentining Practices

Naval stores are generally regarded as the primary product of value from dual-purpose pines. Good turpentining practices will make it possible and profitable for the turpentine farmer to work his trees for naval stores for periods of 10 to 20 years or even longer. But this is not all. With good practices, the periods of gum yield are longer and the final wood value higher than were possible under the old method of working small trees and chipping heavily, with occasional set-backs by woods fires. The essential good turpentining practices are:

(1) *Work only trees 9 inches or more in diameter.*—It is unprofitable to work trees before they are 9 inches in diameter (measured at breast height, or 4½ feet above the ground). A situation in which there are about 200 trees per acre, with an average spacing of about 14 feet apart each way, would be excellent. Half of the trees might then be worked, and the other 100 trees might be left "round" to grow even larger for later working. The stand might thus be worked over a long period of years.

(2) *Keep faces low.*—Do not chip more than one-half inch in height at each streaking. Work each face for a period of not more than five seasons.

(3) *Leave bark bars between faces.*—Run the faces straight up the tree, leaving 3 to 4 inches of live wood between the new and old face.

(4) *Remove nails and gutters from the tree when it is worked out.*—Stumpage is more valuable when all metal has been removed from the trees prior to cutting for wood products. Gutters tacked on with easily pulled tacks or inserted in light ax cuts do less damage to the tree, besides being easily removed.

Collecting gum and loading barrels in longleaf pine woods for hauling to a turpentine still.

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Harvesting Wood Products

Dual-purpose pines will produce, in addition to the yield of naval stores, successive crops of wood products. The total yield of wood during the life of the stand will consist of the several thinnings plus the main crop of mature trees cut after they have been worked for naval stores. The products may include fuel wood, pulpwood, poles, cross ties, posts (to be treated), piling, and sawlogs.

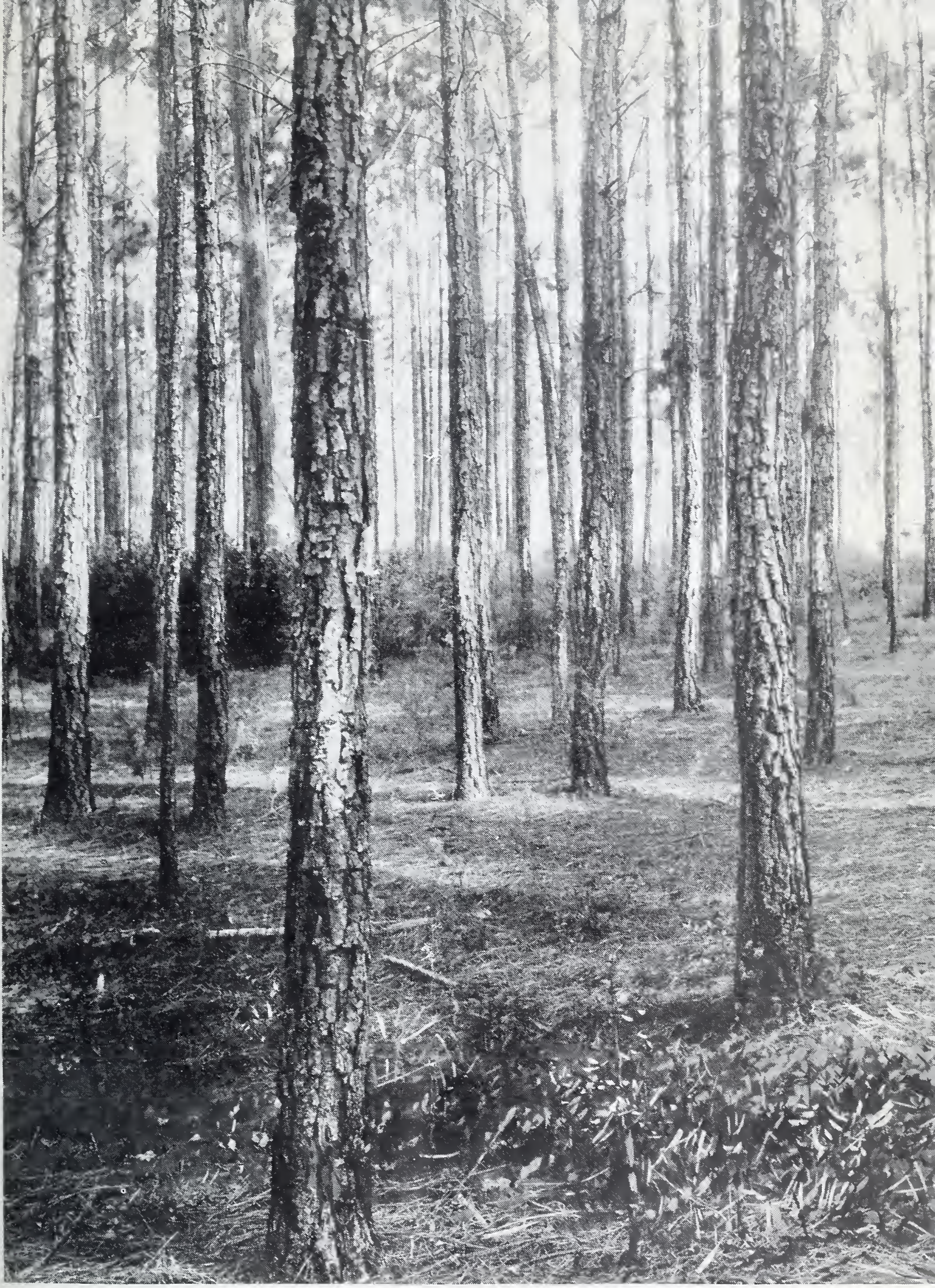
Marketing of Crude Gum by Farmers

More and more farmers are working their dual-purpose pines for crude gum, which they market at a commercial still. In many places in the turpentine belt truck routes have been established to pick up the barrels of gum and return the barrels when empty. This type of market encourages the farmer to chip his trees carefully, which prolongs the working life of the trees and extends the period of cash income to the farm from the sale of the crude gum.

CONSERVATION PROGRAMS . . .

THE United States Department of Agriculture is cooperating with naval stores producers in an effort to bring about better economic conditions for producers of this farm crop. Naval stores conservation programs, authorized by and set up under the Soil Conservation and Domestic Allotment Act, have been made available to naval stores producers. The conservation programs are administered jointly by the Agricultural Adjustment Administration and the Forest Service. The field and inspection work to insure compliance with administrative regulations has been done by the Forest Service.

The basic objective of the naval stores conservation program has been to conserve the timber resource, which is of primary interest to the timber owner and the turpentine farmer, and also of vital concern to the general public. The means used in promoting conservative naval stores production



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An ideal stand of slash pine, well-spaced and ready for profitable turpentining.

consist mainly of certain requirements which must be met by the gum producers who voluntarily participate in the program. These requirements, which are in line with the good turpentining practices already mentioned, are:

> Trees under 9 inches in diameter at breast height (4½ feet above the ground) shall not be faced.
>
> Trees less than 14 inches in diameter shall not have more than one face concurrently worked.
>
> Observance must be given to other known beneficial turpentining practices, such as the proper number of streaks per face during a season, the proper height and depth of streaks, the most desirable height of faces on trees, providing a sufficient bark bar between any two faces on the same tree, etc.
>
> The timberland must be protected from fire.
>
> In cutting operations a sufficient number of standing seed trees must be left to insure adequate seeding to obtain replacement by young growth of the old stand that is harvested.

In return for observance of the conditions of the program, benefit payments are authorized. Payments are intended to reimburse the producers for a part of the expense they incur in complying with the provisions of the program. These payments are not intended as a gift, and rarely, if ever, do they represent an immediate net profit to the producer. Ultimately, however, a profit should come to the producer through the higher yields which should result from the practice of conservatively turpentining only the larger and more thrifty trees.

It has been estimated that, with the prices prevailing for turpentine and rosin and the costs of production during the early part of 1938, timber yielding less than 40 units of naval stores per crop will show a net loss to the producer (a unit of gum naval stores consists of 1 barrel of turpentine and 3⅓ barrels of rosin, and a crop means 10,000 faces or cups). The necessity for securing a heavy yield per crop in order to show a profit makes it imperative for the producer to confine his operations to the larger trees and better stands of timber.

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